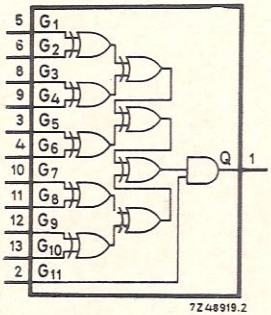
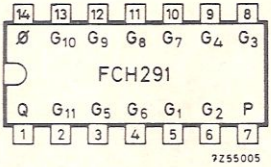
The FC family of DTL silicon monolithic integrated circuits has been designed for medium speed digital applications in computing, office electronics, telecommunication, instrumentation and industrial control.

development sample data

SINGLE 10-BIT PARITY CHECKER



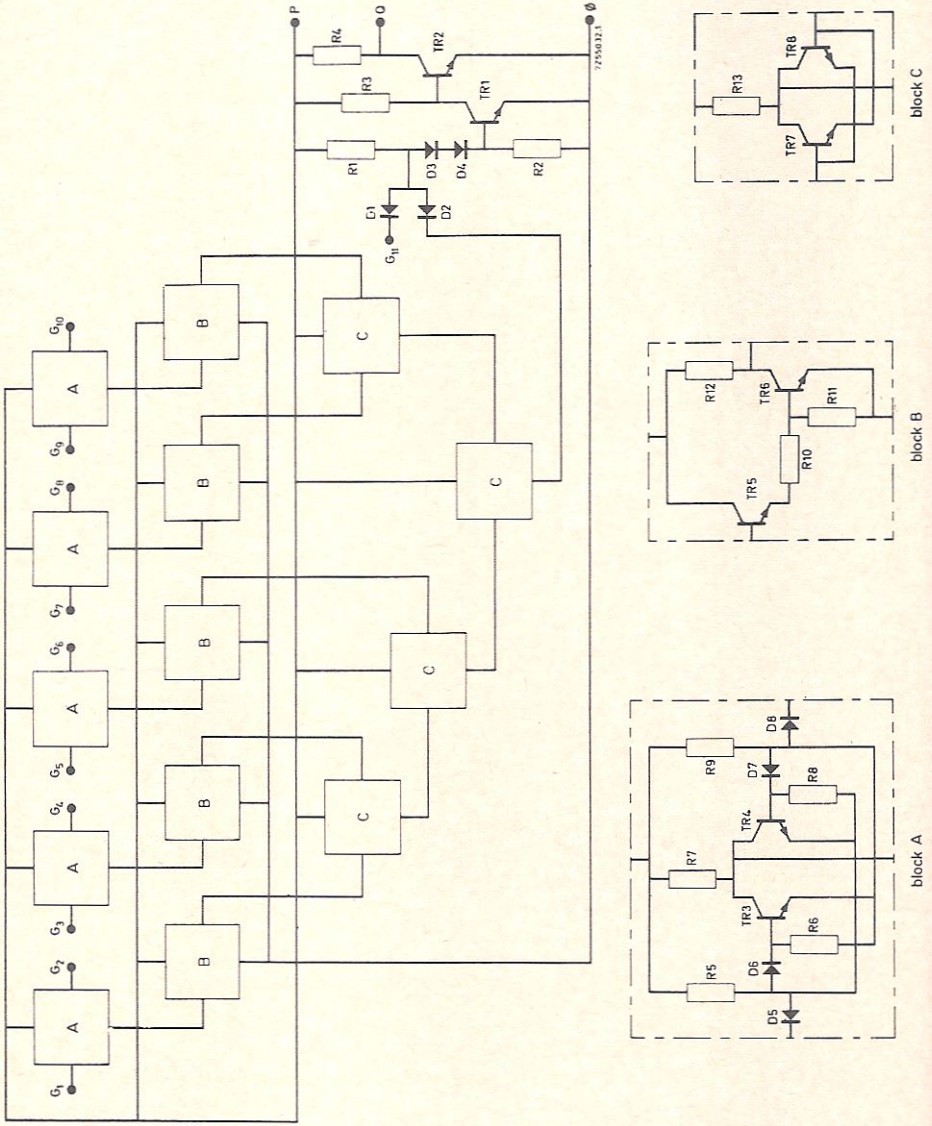


QUICK REFERENCE DATA			
Supply voltage	V_P	6.0 ± 5%	V
Operating ambient temperature range	T_{amb}	0 to +75	°C
Average propagation delay time N = 6, C_W = 60 pF, T_{amb} = 25 °C	t_{pd}	typ. 150	ns
Available d.c. fan-out T_{amb} = 0 to +75 °C	N_a	⩾ 7	
D.C. noise margin T_{amb} = 25 °C	M_L	typ. 1.2	V
Power consumption 50% duty cycle, T_{amb} = 25 °C	P_{av}	typ. 110	mW

The FCH291 comprises nine exclusive-OR functions followed by an AND gate. If an odd number of inputs (G_1 to G_{10}) are HIGH the output will be HIGH, provided G_{11} is HIGH. If an even number of inputs (G_1 to G_{10}) are HIGH the output will be LOW, provided G_{11} is HIGH. If G_{11} is LOW the output will be LOW regardless the condition of other inputs.

These data, based on the specifications and measured performance of development samples, afford a preliminary indication of the characteristics to be expected of the described product. Distribution of development samples implies no guarantee as to the subsequent availability of the product

CIRCUIT DIAGRAM



SYSTEM DESIGN DATA

Uniform system temperature	T_{amb}	0 to +75	°C
Uniform system supply voltage	V_P	5.7 to 6.3	V
Available d.c. fan-out	N_a	⩾ 7	
D.C. noise margin	M_L	min. 0.4	V
	M_H	min. 1.5	V
Average propagation delay time	t_{pd}	max. 250	ns
Equivalent input capacitance	C_G	typ. 4	pF
Supply current (duty cycle 50%)	I_{Pav}	typ. 21	mA
Power dissipation at T_{amb} = +75 °C	P_{tot}	max. 190	mW

FUNCTION TABLE

G_1	G_2	G_3	G_4	G_5	G_6	G_7	G_8	G_9	G_{10}	G_{11}	Q
Even number of inputs HIGH										H	L
Odd number of inputs HIGH										H	H
X	X	X	X	X	X	X	X	X	X	L	L

H = HIGH state (the more positive voltage)
L = LOW state (the less positive voltage)
X = state is immaterial

RATINGS Limiting values in accordance with the Absolute Maximum System (IEC134)

Supply voltage	V_P	max.	8.0	V
Output voltage	V_Q	max.	8.0	V
Input voltage	V_G	max.	8.0	V
Output current [1]	$-I_Q$	max.	20	mA
Input current [2]	$-I_G$	max.	20	mA
Voltage difference between any two inputs		max.	8.0	V
Storage temperature	T_{stg}	−55 to +125		°C
Operating ambient temperature	T_{amb}	0 to +75		°C

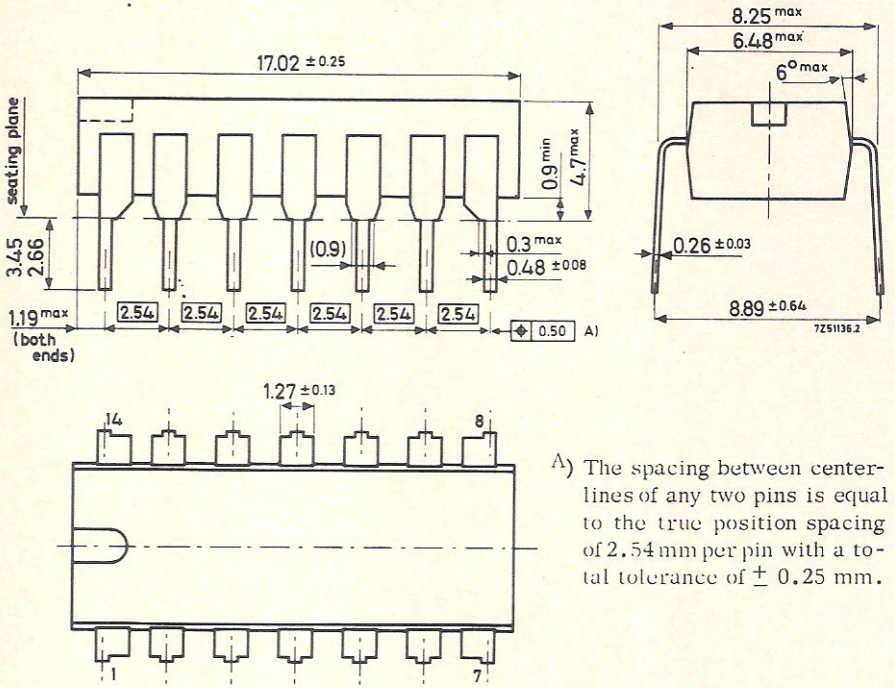
1) For negative output voltage.
2) At this limit input voltage typ.: −1.5 V.

CHARACTERISTICS

		T_{amb} (°C)				Conditions and references	
		0	+25	+75		V_P (V)	
STATIC DATA							
Output voltage LOW	V_{QLmax}	0.4	0.4	0.4	V	5.7 and 6.3	For the proper combination of inputs to be HIGH or LOW see Function Table
at: Output current LOW	I_{QLmax}	14.0 14.0	14.0 14.0	14.0 14.0	mA mA	5.7 6.3	
Output voltage HIGH	V_{QHmin}	5.3	5.3	5.3	V	5.7 and 6.3	$I_Q = 0$
	V_{QHmin}	4.7	4.7	4.5	V	5.7	$I_Q = -200\ \mu A$
at: Input voltage LOW	V_{GLmax}	1.0	1.0	0.8	V	5.7 and 6.3	For the proper combination of inputs to be HIGH or LOW see Function Table
and at: Input voltage HIGH	V_{GHmin}	3.8	3.8	3.4	V	5.7 and 6.3	
Input current LOW	$-I_{G1\ to\ 10\ Lmax}$	1.75 2.0	1.65 1.9	1.55 1.8	mA mA	5.7 6.3	$V_{G1\ to\ 10} = 0.4$ V $V_{G1\ to\ 10} = 0.4$ V
	$-I_{G11max}$	1.9 2.1	1.8 2.0	1.7 1.9	mA mA	5.7 6.3	$V_{G11} = 0.4$ V $V_{G11} = 0.4$ V
Input current HIGH	I_{GHmax}	1.0	1.0	25	μA	5.7	$V_G = 5.3$ V other inputs 0 V
Supply current	I_{Pmax}	32.0	30.5	28.0	mA	6.3	G inputs LOW.

PACKAGE OUTLINE

Dimensions in mm



A) The spacing between centerlines of any two pins is equal to the true position spacing of 2.54 mm per pin with a total tolerance of ± 0.25 mm.

Handling notes

1. Devices may be soldered directly into circuits with soldering irons. At iron temperatures below 245 °C the maximum soldering time should be less than 10 seconds and at iron temperatures between 245 °C and 400 °C the soldering time should be less than 5 seconds. In both cases the soldering iron should be applied below the seating plane (see outline drawing).

2. Devices mounted up to the seating plane on a printed circuit board may be dip or flow soldered providing the solder temperature is below 245 °C and the time of immersion is less than 5 seconds. The body temperature should not be allowed to exceed the maximum storage temperature during soldering. If excessive preheat cycles are used, it may be necessary to cool the printed board immediately after leaving the solder bath/wave in order that this requirement is met.